

by immersing the forearm in a warm bath. Dautrebande demonstrates that a warm bath has a digitalis-like action. However, it is not so much his results as it is his scientific method of attack and his demonstration that physical therapeutic measures can be studied from a scientific basis as were drugs to drugs that merit attention. These new methods signalize a beginning in a much neglected study of physical therapy, and it is to be hoped that university medical schools will carry out similar investigation as a duty.

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Physiology, Biochemistry, and Pharmacology

Surface Phenomena and Sickie-Cell Anemia—
In view of the increasing importance assigned to surface phenomena in living structures it is of interest to note instances in which surface forces seem to play a rôle in diseased conditions. Recently H. W. Josephs¹ has called attention to an interesting set of conditions existing in so-called sickie-cell anemia.

When the erythrocytes of a patient with sickie-cell anemia are washed five to seven times with physiological salt solution the abnormal cell forms regain their normal appearance. If the washed cells are replaced in serum, or in the saline used for washing the erythrocytes of normal patients or of patients with sickie-cell anemia, the abnormal forms reappear to the same extent as originally. But the replacement of the washed cells in plasma does not result in abnormal forms. The author concludes that all plasmas contain an unknown substance which is removed by adsorption on the erythrocytes, that this substance can be washed off with saline, and lastly that this substance is responsible for the appearance of a certain number of abnormal forms in patients having sickie-cell anemia. Joseph states that there was no reduction of surface tension in the salt solutions after washing the cells, and therefore the adsorbed substance is not a constituent of bile. The further observation was made that in the presence of sickie cells there was a marked tendency to stringy agglutination.

From the data presented it is difficult to draw definite conclusions, but the fact that the cells re-assume abnormal forms in serum and in the saline washings, though not in plasma, indicates the existence and emphasizes the importance of a delicate physical-chemical equilibrium between the cells and the suspending medium, possibly in virtue of a toxic substance in the anemia studied. The results are in accord with the purely experimental findings regarding the thrombocyte and erythrocyte changes produced by agents causing anaphylactoid reactions² in which physical-chemical forces were responsible.

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1. Josephs, H. W.: *Bull. Johns Hopkins Hospital*, 1927, xl: 77.

2. De Eds, F., and Mitchell, V.: *Jour. Pharm. Expt. Therap.*, 1926, xxviii: 433.

Proctology

Anal Fistula—Bleeding from Rectum—Anesthesia in Rectal Operations—Recent advances in the treatment of anal fistula are suggested by Norbury and Gabriel.¹ The difficulty hitherto has been the exact determination of tortuous and unsuspected tracts in complicated fistulae with multiple external openings. Often the operation is unfortunately unsuccessful owing to some of these tracts being inaccessible to demonstration either by the probe or by the injection of dyes. These two surgeons inject lipiodol followed by x-ray stereoscopic photographs of the tracts. A more accurate estimate of the branching fistulae is thereby obtained. Furthermore, when the tracts themselves are diseased, success of any operation on them is in proportion to the thoroughness with which drainage is instituted. Thus, great saucer-shaped wounds should be produced which, however, heal entirely if no fistulous tract remain. The healing of such wounds Gabriel states may be greatly facilitated by using Thiersch skin grafts subsequent to the operation.

One type of bleeding from the rectum offers its own diagnosis and that is, endometrioma involving the rectum. The patient's hemorrhage in such cases is associated with menstruation, which is the pathognomonic sign. Extrauterine endometriomata are not uncommon, but those causing bleeding from the rectum are exceedingly rare. Two instances are reported by L. M. Miles.² Microscopic investigation of these shows that the rectal mucosa is resistant to perforation by a pelvic endometrioma and that bleeding, although menstrual, occurs irregularly at monthly intervals, because the bleeding is dependent upon rupture of the tumor during its periodic congestion and not from growth through the mucosa itself. The treatment is total removal of the tumor if possible; otherwise, a bilateral oöphorectomy or radiation of the ovaries by the roentgen rays.

Murietta, Buie and others³ have added excellent discussion to the problem of anesthesia for operations on the rectum and anus. It is a subject still somewhat unsettled. Major operations produce a great amount of shock for well-known reasons. In such cases spinal anesthesia, if not otherwise contraindicated, has virtually no risk when this risk is compared to the magnitude of the operation itself. It is a different matter when one suggests spinal anesthesia for the minor operations in the perianal region, for there is an absolute danger by this method. One may operate satisfactorily on hemorrhoids, fistulae, fissures, etc., under gas and oxygen anesthesia when given by an expert. Local anesthesia distorts the flaccid parts of this region considerably and, if it were for some reason necessary to block sensation, it would be more helpful to the operator to infiltrate the caudal canal or the sacral foramina. This means, however, requires a certain experience and dexterity, but should be known by the proctologist. Caudal and transsacral anesthesia is effective in twenty or more minutes, while spinal anesthesia results in five minutes. Sacral anesthesia of the two

1. Norbury, E. C., and Gabriel, W. B.: *Proc. Roy. Soc. Med.*, January 12, 1927.

2. Miles, L. M.: *Minnesota Med.*, February, 1927, pp. 83-93.

3. *Trans. Amer. Proc. Soc.*, 1925, pp. 4-21.

types mentioned is used considerably in America but rarely in England. In the latter country spinal anesthesia for major rectal work has been used consistently since the surgeon, A. E. Barker, introduced it from Germany; and stovaine which he used, has never been supplanted. In combination with nitrous oxide and oxygen it is the favorite method in major surgery of the lower bowel. M. S. WOOLF,

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Surgery

Treatment of Osteomyelitis of the Jaw—Osteomyelitis, more properly termed necrosis, of the jaw is an exceedingly dangerous condition and demands infinite patience in its treatment.

In the acute state, too radical surgery in removing bone and curetting is most likely to result in a septicemia and possibly death, for new blood channels are thereby opened and the infection, as a rule streptococci predominating, gains entrance to the general circulation. Drainage of the infected area is the only justifiable treatment at this stage. It should be obtained preferably by gently clearing out the dental pocket; or, second choice, by buccal approach to the infected area or, if necessary, skin incision and opening of the periosteum laterally, or at the lower border. Mouth wash and bi-daily gentle manipulation to insure the proper drainage are essential. X-ray to show the presence or absence of necrosis is of no value under approximately ten days, and will do harm at this stage by lowering the local tissue resistance.

In the chronic stage, the basic procedures are the gradual removal of sequestra performed as spontaneous separation occurs, and avoidance of disturbance to the periosteum and the new bone which develops from the live bone cells on this layer. The diseased bone must be left a sufficient length of time, approximately ninety days, in order to retain the normal contour of the mandible. Simultaneously the new bone is forming at the periphery and gradual extrusion of the sequestra to the center, from which they may be removed without harm, ensues. The teeth, especially when only partially developed, should be left in place, for they will respectively become fixed and continue to function or grow to function. During this period, strict attention must be paid to the mouth hygiene and, if necessary, dental or interdental splinting employed, to hold the proper occlusion of the teeth of the opposite side of the mandible and the opposing teeth above.

Osteomyelitis of the jaw then, in the acute stage, should be treated by adequate drainage only, and this obtained by as little trauma as possible. In the chronic stage, time should be allowed for the new bone to develop so as to assume the form of the necrosed bone, and the dead bone to be extruded gradually from the center as sufficient separation occurs. As Blair¹ has suggested, an Italian proverb, "He who goes slowly, goes safely; he who goes safely, goes surely," should be the dictum in treatment of osteomyelitis of the jaw.

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1. Blair, V. P., and Brown: Osteomyelitis of the Jaw, Surg. Clin. N. A., 5, 1925, pp. 1413-36.

Tuberculosis

Vaccination in Tuberculosis—There is much evidence to show that resistance against tuberculosis is developed in the children of tuberculous parents. Like the phenomenon of evolution, the fact is clear, although the mode of operation may be vague. In proof of the development of resistance to tuberculosis, there are facts not only supported by living material, but incontrovertible evidence is also offered by vast autopsy studies such as those by Opie,¹ Robertson,² and many others.

A disease implanting itself upon virgin soil reaps a terrible harvest. The opposite is true, however, in communities where the disease has become endemic. Epidemiological studies, notably those of Topley³ and others in England, and Flexner⁴ and his associates in this country, have shown that the factors of resistance and disease incidence among exposed and unexposed groups may be paralleled in clinical practice. The statisticians have added further important evidence of a definite relationship existing between exposure to infections such as tuberculosis, and the morbidity and mortality rates in groups of population. Dublin⁵ has pointed out the relatively lower rate for tuberculosis in children of the industrial as compared with the general population. Significantly, too, he has commented on the greater prevalence of the disease in the industrial group. It is clear, from whatever angle we would approach the subject, that tubercularization leads to a lessened incidence in the offspring and, more important still, to a favorable progress and outcome of the disease in those who may have become infected.

One of the most striking studies in recent years, reported by Drolet,⁶ has adduced evidence of fundamental interest to the student of chest diseases as well as to the general practitioner. It was found that exposure to tuberculosis was reported more frequently among nontuberculous patients than among those who were tuberculous. More than twice as many gave a history of tuberculosis in one or both parents among 2509 nontuberculous persons as compared with a group of 2785 tuberculous patients among whom only 14 per cent reported a parental history of infection. Among 5852 persons with a negative history of tuberculosis in parents, 59 per cent were found to be tuberculous, whereas among 1577 persons with a positive parental history, 34 per cent were tuberculous. Making due allowance for the smaller number of subjects in this last group, the difference appeared, none the less, striking enough to warrant the conclusion that the incidence of tuberculosis was inversely proportional to the amount of parental infection. Furthermore, evidence was adduced to show a greater tendency to recovery in patients with tuberculous parents than in members of families attacked by the disease for the first time.

In the light of the foregoing observations and

1. Opie, E. L.: Am. Rev. of Tuberc., 1924, 10, 249; Bull. N. Y. Tuberc. Assn., March and April, 1924, p. 3.

2. Robertson: Tr. Twentieth Annual Meeting, Nat. Tuberc. Assn., Atlanta, May, 1924.

3. Topley, W. W.: Lancet, 1919, 2, 1, 45, 91.

4. Flexner, S. et al.: Am. J. Med. Soc., 1926, 171, 469; *ibid.*, 171, 625; Trans. Cong. Am. Phys. and Surg., 1919, 11, 56; J. Exp. Med. 1922-26 (numerous papers).

5. Dublin, L.: Tr. Nineteenth Meeting Nat. Tuberc. Assn., 1923, June 20, p. 18.

6. Drolet, G. J.: Am. Rev. of Tuberc., 1924, 10, 280.